REMARKS

The claims are 7-17 and 21-26, with claim 7 being in independent form. Applicants respectfully request favorable reconsideration of the subject application in view of the following remarks.

Claims 7-12 and 14 stand rejected under 35 U.S.C. § 102(b) for allegedly being anticipated by Breivik *et al.* (WO 00/01249). Applicants respectfully traverse this rejection.

The present invention relates to a novel method of farm-raising fish of marine species including fry, that are still in the growing stage. The method comprises feeding the fish a feed of 25-70% by weight of proteins, 5-60% by weight of lipids, 0-40% by weight of carbohydrates, and 0-15% by weight of one or more additional components, wherein the lipids comprise at least one oil selected from the group consisting of marine oils and vegetable oils, wherein said at-least-one oil has been treated with at least one nitrogen-containing compound, wherein the amount of the at-least-one nitrogen-containing compound is sufficient to reduce the oil's susceptibility to being degraded through oxidation, and the amount of the at-least-one oil in the feed is sufficient to enhance the feed's ability to either improve the survival rate of the fish or improve the growth rate of the fish.

Breivik relates to feed for salmonids in order to obtain red-colored fish meat, which is dependent on the addition of pigment to the feed. Pigment, in most cases astaxanthin, is unstable. The object of Breivik was to protect the pigment, which is the most expensive ingredient in feed for salmonids. Unlike the present invention which relates to feed for marine species, which are hatched and developed in saltwater, Breivik applies to salmonids, which spawn in freshwater. Salmonids are not included in the term "marine species."

In paragraph 13 of the Office Action, the Examiner alleges that Applicants' use of the term "marine species" includes salmon. Applicants respectfully disagree.

Applicants note the use of the phrase "other marine species" in the subject application may be somewhat unclear to one with little to no experience in fish farming. However, Applicants argue that the phrase "other marine species" to one skilled in the art would clearly exclude salmon. "Other marine species," as identified by the Examiner in the Office Action, is used in the context of referring to the recent increased interest in marine species as an alternative to salmon in the aquaculture industry. As evidence of this usage, Applicants submit herewith the article, "Preliminary information on cod and haddock production in submerged cages off the coast of New Hampshire, USA," *ICES Journal of Marine Science*, 63: 385-392 (2006) (Attachment A), which discusses the same problem that is identified by Applicants in the subject application. The article details the present challenges in aquaculture in New England stating that "the region's largest aquaculture industry, namely Atlantic salmon (*Salmo salar*), is experiencing economic hardship because of increasing worldwide production, and has created an interest in rearing alternative marine species." *Id.* at page 385. Therefore, Applicants submit that the use of the phrase, "other marine species," in the specification of the subject invention does not indicate that salmon is also considered to be a marine species, but indicates that alternatives to salmon have become the object of the aquaculture industry.

Additionally, Applicants submit that one skilled in the art would understand that marine fish species does not include salmonids. Marine fish species is defined as fish species that spend their entire life in salt water, whereas salmon are anadromous fish, i.e., born in fresh water, grow into adults in salt water and return to fresh water to spawn. As objective evidence of

common knowledge that salmon are not marine species, Applicants submit herewith the following references:

- National Oceanic and Atmospheric Administration (NOAA), Office of Protected Resources, "Atlantic Salmon (*Salmo salar*)," http://www.nmfs.noaa.gov/pr/species/fish/atlanticsalmon.htm (Attachment B).
- Clem Fay et al., "Status Review for Anadromous Atlantic Salmon (*Salmo salar*) in the United States," National Oceanic and Atmospheric Administration (NOAA), Office of Protected Resources, at Section 3.1, pages 1-3 and 8-13 (2006), http://www.nmfs.noaa.gov/pr/pdfs/statusreviews/atlanticsalmon.pdf (Attachment C).

According to MPEP § 2143.03, all limitations in a claim must be considered in judging the patentability of the claim against those references cited against it. *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Applicants submit that limiting the invention to marine species, which does not include salmonids, renders the claim patentably distinct from Breivik.

For the reasons referenced above, Applicants submit that the claimed invention is not anticipated by Breivik and respectfully request withdrawal of the rejection under 35 U.S.C. § 102.

Claims 13, 15-17 and 21-26 stand rejected under 35 U.S.C. § 103(a) for allegedly being obvious in view of Breivik *et al.* (WO 00/01249), with evidence provided by Food Day, Global Gourmet (March 7, 1997). Applicants respectfully traverse this rejection.

The Examiner alleges that Breivik teaches a method for farming fish comprising feeding them a food similar to the present invention. However, Applicants submit that the method of the present claimed invention is not rendered obvious by Breivik since the oxidation process targeted by the claimed invention is distinct from the oxidative process targeted in Breivik. Breivik relates to a method for stabilizing vegetable and animal oils and pigments for a

feed for salmonids during production of the fish fodder. Page 1, lines 10-12 and Page 10, lines 1-2. When the fat source in the fish feed reacts with oxygen, oxidation products are formed. Page 2, lines 5-9. The secondary oxidation products are measured by analyzing the anisidine value of the product. Page 2, lines 10-13. As evidenced by the Examples and Figures therein, the invention disclosed in Breivik is directed toward its effects on the anisidine values of the fish oil. As confirmed in "Lexicon of Lipid Nutrition (IUPAC Technical Report)," *Pure Appl. Chem.*, 73(4), 685-744, 689 (2001) (Attachment D), anisidine is a measure of aldehyde production during oxidation of fat, and is used to characterize the oxidative history of fat. It is known by those skilled in the art that aldehydes are indicators of previous oxidative damage. *See* Charlie Scrimgeour, *Bailey's Industrial Oil and Fat Products,* Chemistry of Fatty Acids, 6th Ed., Sec. 4.1.3., p. 19 (2005) (Attachment E).

Conversely, the subject invention relates to ongoing oxidation, i.e. oxidative stress of the feed, where the measurement relates to the oxygen consumption after production. Example 1 of the subject application shows data regarding the presence and concentration of free radicals in the feed. Page 4, line 24 – page 5, line 3. As disclosed in the specification, "[f]ree radicals are associated with ongoing oxidation; i.e. a high level of free radicals in a sample is associated with a high oxidative stress of that sample." Page 4, lines 25-27. The example demonstrates that for stored feed samples, oxygen consumption is lower for feed made with oil treated according to the present invention, compared to feed made with untreated oil. Page 5, lines 17-21.

Breivik does not teach or suggest an invention directed toward the ongoing oxidation of the feed, but merely discloses a method for reducing the anisidine value. Unlike the present invention, Breivik neither discloses a method for reducing the concentration of free

radicals in the feed, nor refers to ongoing oxidation and oxidative stress. There is simply nothing in Breivik that would lead one to think that the reduction in anisidine value (a measure of previous oxidation) would lead to reduction in the concentration of free radicals (a measure of ongoing oxidation).

Food Day does not remedy the deficiencies of Breivik. The Examiner relies on Food Day for evidence that the omission of carotenoids from the food taught by Breivik would not require undue experimentation on the part of one of ordinary skill in the art, who would have a reasonable expectation that the food without the carotenoids would continue to serve as an acceptable diet for all of cod, halibut and fry. Office Action, page 4. While Applicants respectfully disagree with this statement, even if it were taken as accurate, the combination of Breivik and Food Day does not render the present invention obvious.

As noted above, the present invention relates to a novel method of farm-raising fish of marine species. As explained above, Breivik discloses a method directed toward reduction of an oxidative process unlike that of the present claimed invention relating to feed for salmonids. Breivik teaches a method to produce a feed with reduced loss of the pigment astaxanthin. However, unlike the present claimed invention, Breivik does not teach or suggest the production of a feed that reduces oxidative stress of the composition. Thus, for the producer of a feed without such pigment, there is no incentive to use the invention of Breivik to produce a feed with reduced oxidative stress intended for marine species. Food Day is irrelevant to this question, and therefore, Applicants submit that it does not effect the patentability of the claimed invention.

The advantages and surprising results of the present invention is that, by using a treated oil when preparing the feed, the ongoing oxidation in the finished feed is reduced. In this

way, the present invention provides a novel solution to the problem of farm-raising marine species fish.

Applicants submit that a combination of Breivik and Food Day would fail to teach or suggest the claimed invention. Accordingly, Applicants submit that the claims are patentable over the cited art, and respectfully request withdrawal of the rejection under 35 U.S.C. § 103(a).

Wherefore, it is respectfully submitted that the cited art, whether taken alone or together, does not suggest or disclose the presently claimed invention. Accordingly, it is respectfully requested that the claims be allowed and the case passed to issue.

Applicants' undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address given below.

Respectfully submitted,

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